

AMENDMENTS TO THE CLAIMS

- 1     1.     (Currently amended) A method for frequency-time sliced resource allocation in a  
2     multi-tier wireless ATM network, the method comprising:
- 3           a)     receiving at a reservation-based port controller on a wireless signaling channel  
4           a one or more requests for access to a shared frequency-time sliced wireless  
5           medium;
- 6           b)     combining received requests with queued requests;
- 7           c)     prioritizing combined requests with respect to priority class and order of  
8           arrival; and
- 9           d)     determining, on a request-by-request basis, whether a requested size is larger  
10           than the total number of available frequency-time slots and accordingly  
11           queues a request or searching searches a channel chunk matrix (CCM) for a  
12           match set of available frequency time slots, wherein the channel matrix  
13           represents a time frame within the shared frequency time sliced wireless  
14           medium; and
- 15           e)     allocating the set of available time slots if the allocation does not violate a  
16           frequency switching constraint, and if the set of available frequency time slots  
17           contains a number of slots no smaller than a requested number of slots.

1     2.     (Currently amended) The method of claim 1, further comprising:  
2             ~~wherein the searching step comprises searching a channel chunk matrix~~  
3             generating said CCM from a channel matrix for indexing and referencing resources  
4             available in said multi-tier wireless ATM network; wherein  
5             said channel matrix represents a collection of ~~comprising a list of contiguous chunks~~  
6             ~~of available time slots in each frequency of the shared frequency-time sliced wireless~~  
7             ~~medium slots.~~

1     3.     (Currently amended) The method of claim 1-2, further comprising:  
2             ~~wherein the searching step comprises searching for a set of available time slots such~~  
3             ~~that all the available time slots are in a single frequency~~  
4             grouping empty time slots in each frequency, which is represented by a column of  
5             said channel matrix, into contiguous chunks;  
6             sorting said contiguous chunks in order of magnitude; and  
7             recording respective slot position and size of said contiguous chunks in a  
8             corresponding column of said CCM.

1     4.     (Currently amended) The method of claim 3-1, wherein  
2             said match is a feasible frequency-time slot or chunk of slots whose assignment to  
3             said requested size does not result in a violation of frequency switching constraints ~~the~~  
4             ~~searching step comprises searching for a single contiguous set of available time slots.~~

1 5. (Currently amended) The method of claim 4-1, wherein  
2 ~~the size of the set of available slots is equal to the requested size~~  
3 said match is a feasible frequency-time slot or chunk of slots whose size equals to  
4 said requested size.

1 6. (Currently amended) The method of claim 4-1, wherein  
2 ~~the size of the set~~ total number of available frequency-time slots is greater than the  
3 requested size, step d) further comprising:  
4 searching said CCM for a single frequency that has multiple feasible chunks whose  
5 cumulative size is equal to or greater than the requested size.

1 7. (Currently amended) The method of claim 1, wherein  
2 the total number of available frequency-time slots is greater than the requested size,  
3 step d) further comprising:  
4 ~~the searching step comprises searching~~ said CCM for a set of available slots such that  
5 ~~the available time slots are in~~ multiple feasible chunks from multiple frequencies.

1 8. (Currently amended) The method of claim 4-3, wherein  
2 ~~the searching step comprises a greedy resource allocation strategy~~  
3 each entry in said corresponding column of said CCM contains a pair of integers  
4 representing the number of idle time slots in a chunk and the temporal position thereof.

1 9. (Currently amended) The method of claim 8~~1~~, wherein  
2 said match is found by the a greedy resource allocation strategy comprises comprising  
3 the following successive allocation steps:  
4 a) searching for a single contiguous set of available time slots in a single frequency,  
5 where the size of the set of available slots is equal to the requested size;  
6 b) searching for a single contiguous set of available time slots in a single frequency,  
7 where the size of the set of available slots is greater than the requested size;  
8 c) searching for separate chunks of available time slots in a single frequency; and  
9 d) searching for separate chunks of available time slots in multiple frequencies.

1 10. (Currently amended) The method of claim 9~~1~~, wherein  
2 each allocation step comprises checking whether the allocation violates a frequency  
3 switching constraint.

1 11. (Currently amended) The method of claim 1~~1~~, further comprising:  
2 ~~combining the received request with other requests and prioritizing the combined~~  
3 ~~requests~~  
4 saving unsatisfied requests in a request queue, each unsatisfied request having a  
5 requested size larger than the total number of available frequency-time slots.

1 12. (Currently amended) The method of claim 1~~1~~, further comprising:  
2 ~~updating the channel matrix and~~ transmitting a notification of allocation to a user.

- 1    13.    (New) The method of claim 1, wherein  
2            the queued requests have higher priority than the received requests in the same  
3    priority class.
- 1    14.    (New) A radio port controller configured to perform the method steps of claim 1.
- 1    15.    (New) A digital computer system configured to perform the method steps of claim 1.
- 1    16.    (New) A computer readable medium tangibly embodying a computer-executable  
2            program of instructions implementing the method steps of claim 1.